Completed Pollution Prevention Project Case Study

United States Department of Energy
Office of Environmental Management
Fact Sheet

New Life for Lead

Los Alamos National Laboratory

Original Problem

The Lujan Center at the Los Alamos Neutron Science Center (LANSCE) studies the properties and structures of materials through probing with neutron streams. The experimental areas are surrounded with neutron-shielding material to prevent exposure to employees and to prevent stray neutrons from reaching sensitive detectors and affecting the results of other experiments. Normally this shielding is composed of steel and polyethylene. The Lujan Center is developing capabilities to examine materials using strong magnetic fields. The use of strong magnetic fields requires replacement of the steel in the shielding with non-magnetic heavy metals.

The Project Solution

The project team could have chosen brass or stainless steel for the non-magnetic shielding, but these materials are quite expensive. Lead bricks from the stockpile at LANSCE are available for reuse at no charge, so lead was chosen for the non-magnetic shielding material.

Value of Improvement

Reusing the lead bricks in the stockpile for as long as possible prolongs the useful life of the lead. The team saved approximately $200,000 by reusing the lead bricks instead of purchasing stainless steel or brass. About 8 metric tons of lead were reused from the stockpile for the shielding.

Lifecycle Waste Reduction	
Lifecycle Waste Reduction	~8000 kg lead
Commencement Date	2002
Project Useful Life (Years)	NA

DOE Monetary Benefits	
Total Project Cost	NA
Lifecycle Savings	~$200,000
Return on Investment	NA

Benefits At-A-Glance

- ~8 metric tons of lead were reused from the stockpile at LANSCE.
- The Lujan Center saved about $200,000 by using the lead instead of brass or stainless steel.

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Summary Data	
Priority Area:	Waste Minimization Projects
Project Type:	Material Selection
Total Project Cost:	NA
Lifecycle Savings:	~$200,000
Implementing Group:	LANSCE
Benefiting Group:	LANSCE
Useful Life Years:	NA
Return on Investment:	NA
Lifecycle Waste Reduction:	~8 metric tons of lead
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LA-UR-03-0450	

Building Upon An Office of Science and Technology Demonstration Success